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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/705,473	Applicant(s) LAMY ET AL.	
	Examiner Peter L. Cheng	Art Unit 2625	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 November 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-29* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-29* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *07 April 2004* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *11/10/2003*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: **Fig. 1** reference characters (**1, 2, 4, 5, 6, 7, 10**), and **Fig. 2** reference characters (**1** through **10**). Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

2. The abstract of the disclosure is objected to because:

- **Line 7:** "system for *for* generating" should be "system for generating";

- **Line 12:** assume applicant intended to cite "carrier is also provided" instead of "carrier is also providing";

3. The use of the trademarks **Postscript [page 7, line 30]**, **Quark XPress [page 8, line 14]**, **Adobe Photoshop [page 8, line 14; page 14, line 6]**, (Adobe) **Illustrator [page 8, line 14]**, (Adobe) **InDesign [page 8, line 15]**, **JDF [page 10, line 7; page 12, line 15; page 13, line 31]**, **CIP4 [page 10, line 7; page 12, line 15; page 13, line 31]**, **ANSI [page 10, line 7]**, **Eye-One [page 10, line 32; page 11, line 8; page 11, line 23]**, **iQ Match [page 11, line 8]**, **ProfileMaker [page 11, line 13]**, **Heidelberg [page 11, line 16]**, and **SpectroMat [page 11, line 16]** have been noted in this application. It should be capitalized wherever it appears and be accompanied by the generic terminology.

Although the use of trademarks is permissible in patent applications, the proprietary nature of the marks should be respected and every effort made to prevent their use in any manner which might adversely affect their validity as trademarks.

4. The disclosure is objected to because of the following informalities:

- There are some typographical and grammatical errors in the disclosure; for example, **page 3, line 26 (**"entitles" should be "entitled"**); page 13, line 31 (**"JDf" should be "JDF"**); page 13, line 4 (**"a nd" should be "and"**); page 14, line 6 (**assume "QxP" refers to "Quark XPress"; if so, suggest adding

"(QUARK XPRESS™)" after "QxP"**); page 15, line 28 (**"t his" should be "this"**)**;

- **Page 13, line 4:** for clarity, the words corresponding to the letters in the abbreviation "SE" should be provided (e.g., enclosed in parentheses following the abbreviation);

- **Page 13, line 29:** for clarity, the words corresponding to the letters in the abbreviation "HDM" should be provided (e.g., enclosed in parentheses following the abbreviation);

- **Page 14, line 9:** for clarity, the words corresponding to the letters in the abbreviation "PDM" should be provided (e.g., enclosed in parentheses following the abbreviation);

- **Page 14, line 23:** for clarity, the words corresponding to the letters in the abbreviation "PPVC" should be provided (e.g., enclosed in parentheses following the abbreviation);

Appropriate correction is required.

Claim Objections

5. Claim 2 is objected to because of the following informalities:

- **Line 10:** examiner assumes applicant intended to cite **wherein at least *three* of the discrete spectral color values ... are equidistant** instead of **wherein at least *one* of the discrete spectral color values ... is equidistant** since at least 3 values are required in order for there to be 2 or more equal "distances";

Appropriate correction is required.

Claim Rejections - 35 USC § 101

6. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claim 29 is rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter (i.e., a "data carrier" which is specified as "*a CD-ROM, a DVD-carrier, <u>a set of digital data signals</u>, a computer server or the like*"; **specification page 6, lines 1 - 2**).

Claims drawn to a propagated signals comprising encoded/modulated data, may be considered a statutory manufacture under the following circumstances:

- The claimed signal does NOT comprise a "laws of nature, physical phenomena, and abstract ideas", and is rather a "non-naturally occurring manufacture or composition of matter – a product of human ingenuity having a distinctive name, character [and] use." *Diamond v. Chakrabarty*, 447 U.S. 303, 206 USPQ 193 (1980).
- The claimed signal is a manufacture, which is defined as "the production of articles for use from raw materials prepared by giving to these materials new forms, qualities, properties, or combinations whether by hand labor or by machinery." *Diamond v. Chakrabarty*, 447 U.S. 303, 206 USPQ 193 (1980). The instant signal is produced from the raw materials of electrons and magnetism by giving new forms to them using machinery (i.e., modulation via. a "carrier waver" or "encoding").
- A signal is tangible in that it can be sensed, measured, captured, amplified, etc. (i.e., the signal is real).
- "... a signal claim directed to a practical application of electromagnetic energy is statutory regardless of its transitory nature." MPEP 2106.IV.B.1.(c) Natural Phenomena Such as Electricity and Magnetism.
- The signal is modulated via a carrier waver, or encoded to facilitate its readability by the machine/computer, thus facilitating the functionality of the underlying process.
- The underlying process recites functional descriptive material.
- The underlying process is otherwise statutory, reciting a practical application having a "useful, concrete and tangible result" *State Street*, 149 F.3d at 1373, 47 USPQ2d at 1601-02.

While the signal defined by claim 29 is man-made and tangible, it is NON-STATUTORY because the underlying process recites purely non-functional descriptive material, which is non-statutory per se.

MPEP 2106.IV.B.1(a) (Nonfunctional Descriptive Material) states:

"Descriptive material that cannot exhibit any functional interrelationship with the way in which computing processes are performed does not constitute a statutory process, machine, manufacture or composition of matter and should be rejected under 35 U.S.C. 101."

"Where certain types of descriptive material, such as music, art, photographs and mere arrangements or compilations of facts or data, are merely stored so as to be read or outputted by a computer without creating any functional interrelationship, either as part of the stored data or as part of the computing process performed by the computer, then such descriptive material alone does not impart functionality either to the data as so structured, or to the computer."

"For example, music is commonly sold to consumers in the form of a compact disc. In such cases, the know compact disc acts as nothing more than a carrier for nonfunctional descriptive material. The purely nonfunctional descriptive material cannot alone provide the practical application for the manufacture."

MPEP 2106.IV.B.1 (Nonstatutory Subject Matter) states:

"When nonfunctional descriptive material is recorded on some computer-readable medium, it is not statutory since no requisite functionality is present to satisfy the practical application requirement".

Claim 29 currently recites "**A data carrier comprising a device that is adapted to receive color data ...**". There is no functional relationship imparted by this data to a machine or computing device. Therefore, the claim is drawn to non-functional descriptive material which is non-statutory per se, regardless of the medium carrying the signal.

Furthermore, when the data carrier is *a set of digital data signals*, the signal is NOT modulated via a carrier waver, or encoded in a manner to facilitate its readability, thus NOT facilitating the functionality of the underlying process.

MPEP 2106.IV.B.1(a) (Functional Descriptive Material) states:

"Data structures not claimed as embodied in a computer-readable medium are descriptive material per se and are not statutory because they are not capable of causing functional change in the computer."

"Such claimed data structures do not define any structural or functional interrelationships between the data structure and other claimed aspects of the invention which permit the data structure's functionality to be realized."

The claimed signal imparts *color data* that constitute *non-functional descriptive material*. If the claimed signal were to constitute *functional descriptive material*, in a computer product claim, functional descriptive material requires a computer readable medium to "permit the data structure's functionality to be realized" (MPEP 2106.IV.B.1(a) as cited above). In the same manner, a signal must be modulated via a carrier wave or encoded in a manner that permits the data structure's functionality to be

realized. The instant claim does not recite any form of modulation or encoding that would facilitate functionality, and is therefore non-statutory.

Claim Rejections - 35 USC § 112

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claim 3 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 3 recites the limitation "**the color gamut**" in **line 2**. There is insufficient antecedent basis for this limitation in the claim.

9. Claims 5, 8, and 24 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. An "**alternative printing device**" [claim 5], and "**alternative printing component**" [claims 8, 24] refer to items which are indefinite and do not clearly set forth the metes and bounds of the claimed invention.

10. Claim 13 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant

regards as the invention. Claim 13 recites the limitation "**the recording substrate**" in **line 1**. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

11. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

12. Claims 1, and 4 - 29 are rejected under 35 U.S.C. 102(e) as being anticipated by **CHAN [US Patent 7,046,396 B2]**.

As for claim 1, CHAN teaches a method for generating a digital color standard system for the generation or reproduction of standardized colors [CHAN provides a system "for identifying a desired ink color and a formulation for a matching ink color"; **col. 1, lines 56 - 58**], comprising

a. Dividing a color spectrum into a plurality of discrete spectral color values with predetermined gaps between at least some of the discrete spectral color values;

[This limitation corresponds to a database of discrete spectral color values. CHAN teaches that a "spectrophotometer 14, color monitor 16, and viewing booth 18 are used ... to create a color data base associated with a set of ink base colors"; **col. 3, lines 43 – 46**, and cites, "The database is prepared by measuring", with the spectrophotometer, "the color information for print samples prepared from the ink color base set and/or combinations thereof at difference concentrations or strengths. The database contains a sufficient number of color information points so that the computer can extrapolate, if necessary, the color information that would result from the different combinations of the ink base color set"; **col. 5, lines 38 - 45]**

b. Digitizing the discrete spectral color values;

[Computer databases store information as digitized, discrete values. As noted previously, CHAN teaches the use of a spectrophotometer to measure "print samples prepared from the ink color base set" which are then stored in a database**];**

and c. Processing the digitized color values

["Processing" of the digitized color values may include the transmission of such values from the "second computer" to the "first computer", including the display of such values on a monitor.

"The second computer **10** (illustrated as the server) selects an ink formulation and transmits the color data associated with the selected formulation to the first computer **4**"; **col. 3, lines 31 – 33.**

Furthermore, a software package "converts the spectral data of a color that is input from the computer 4 or the database software 22 to the digital information that will produce the same color on the screens of monitor 6 and 16"; **col. 3, lines 52 - 55].**

Regarding claim 4, CHAN further teaches the method according to claim 1, wherein **the discrete color values or the digitized spectral color values are adapted to a color recording capability of a particular color recording process or a particular color recording device.**

[CHAN teaches that the "second computer" may also consider "color recording characteristics" for the type of "recording substrate", "color reproduction characteristics" for the type of "color material", and the "color appearance characteristics" for the "color reproducing process". That is, the color data that is stored on the "second computer" and is transmitted to the "first computer" is data which takes into account these various characteristics.

CHAN cites, "It is especially preferred to include additional information relating to the print substrate, printing equipment, and other information that may affect the

color match on the substrate or performance of the ink. Examples of such information include, without limitation, type of substrate, color of substrate, print process (e.g., offset, gravure, sheetfed, flexographic, etc.), type of printing equipment, press speed, and/or type of ink or ink properties desired"; **col. 4, lines 30 – 37.**

Therefore, CHAN teaches adapting the color values to a color recording capability of a particular color recording process or a particular color recording device (i.e., a type of "print process", or "printing equipment").**]**

Regarding claim 5, CHAN further teaches the method according to claim 4, wherein

the particular color recording device is selected from the group consisting of an ink jet printer, a rotary printing press ~~and an *alternative* printing device~~.

[As noted for claim 4, CHAN cites various examples of print processes which include offset, gravure, sheet-fed, and flexographic. Both offset and flexographic are types of "rotary printing".**]**

Regarding claim 6, CHAN further teaches the method according to claim 1, wherein

at least one of the discrete spectral color values and the digital color values is adapted to a particular recording substrate

[As noted for claim 4, CHAN teaches that the color values are adapted to a particular recording substrate.

CHAN cites, "It is especially preferred to include additional information relating to the print substrate, printing equipment, and other information that may affect the color match on the substrate or performance of the ink. Examples of such information include, without limitation, type of substrate, color of substrate, print process (e.g., offset, gravure, sheetfed, flexographic, etc.), type of printing equipment, press speed, and/or type of ink or ink properties desired"; **col. 4, lines 30 – 37].**

Regarding claim 7, CHAN further teaches the method according to claim 1, wherein

at least one of the discrete spectral color values and the digital color values is adapted to a particular recording material

[As noted for claim 4, CHAN teaches that the color values are adapted to a particular recording material (i.e., ink or colorant).

CHAN cites, "It is especially preferred to include additional information relating to the print substrate, printing equipment, and other information that may affect the color match on the substrate or performance of the ink. Examples of such information include, without limitation, type of substrate, color of substrate, print process (e.g., offset, gravure, sheetfed, flexographic, etc.), type of printing

equipment, press speed, and/or type of ink or ink properties desired"; **col. 4, lines 30 – 37].**

Regarding claims 8, and 24, CHAN further teaches a method, wherein

said particular recording material is selected from the group consisting of an ink, toner ~~and an alternative printing component~~

[As noted for claim 7, CHAN teaches that the recording material may be a type of ink**].**

Regarding claim 9, CHAN further teaches the method according to claim 1, wherein

particular colors of particular image areas are scanned by means of a spectral measurement device and the particular colors or the spectral color data of the particular colors are assigned to the digitized color values for further processing

[CHAN teaches that a "spectrophotometer 14, color monitor 16, and viewing booth 18 are used ... to create a color data base associated with a set of ink base colors"; **col. 3, lines 43 – 46**, and cites, "The database is prepared by measuring", with the spectrophotometer, "the color information for print samples prepared from the ink color base set and/or combinations thereof at difference concentrations or strengths. The database contains a sufficient number of color information points so that the computer can extrapolate, if necessary, the color

information that would result from the different combinations of the ink base color set"; **col. 5, lines 38 - 45].**

Regarding claim 10, CHAN further teaches the method according to claim 1, wherein

at least one of the discrete spectral color values and the digitized color values is set in a relation to pre-defined light conditions

[CHAN teaches that the color values contained in the database may also take into account various lighting conditions. CHAN cites, "Because print color can appear different when viewed under different light sources, it is preferred to include in the database color information for the colors as they would appear under different light sources, for example in sunlight, in D65 daylight, cool white fluorescent light, and incandescent light"; **col. 6, lines 23 - 28].**

Regarding claim 11, CHAN further teaches the method according to claim 1, wherein

the appearance of at least one of a discrete spectral color value and a digitized color value on a particular recording substrate or recording device is set into a relationship to pre-defined light conditions

[As noted for claim 4, CHAN teaches adapting the color values to a color recording capability of a particular color recording process or a particular color recording device (i.e., a type of "print process", or "printing equipment").

As noted for claim 6, CHAN teaches that the color values are adapted to a particular recording substrate.

As noted for claim 10, CHAN teaches that the color values contained in the database may also take into account various lighting conditions.

Therefore, CHAN teaches that the color values contained in the database are related by a recording process (or device), recording substrate, and lighting conditions**]**.

Regarding claim 12, CHAN further teaches the method according to claim 1, wherein **at least one of the discrete spectral color values and the digitized color values is represented by means of at least one reflectance curve specified in regular wavelength intervals**

[As noted for claim 4, a spectrophotometer is used to obtain spectral color information for generating a database of color data.

CHAN teaches that the "database contains a sufficient number of color information points so that the computer can extrapolate … the color information that would result from the different combinations of the ink base color set. In other words, the computer calculates a *synthesized spectral curve* or other color

information for the ink formulation based on the color information for the different concentrations of each ink base color"; **col. 5, lines 41 – 48.**

Furthermore, CHAN teaches that a "color match" may be determined "by the comparison of the reflectance values in the visible spectrum for the desired color and the color identified by the color matching program. A least squares calculation can be done to determine the ink formulation that will have the spectral curve with the closest fit to the spectral curve of the desired color standard, where the spectral curve for the ink formulation may be extrapolated from information of measured spectral curves in the data"; **col. 6, lines 33 – 41.**

Therefore, the color data contained in the database is in the form of a reflectance, spectral curve. Reflectance curve data is typically sampled and stored at regular wavelength intervals**].**

Regarding claim 13, CHAN further teaches the method according to claim 1, wherein **the recording substrate which is to be used is being spectrally measured to provide a recording substrate-specific spectral color data set and at least one of the discrete spectral color values and the digitized color values is adjusted according to said recording substrate-specific spectral color data set**

[As noted previously, CHAN teaches "that color can vary for an ink depending upon the substrate being printed"; **col. 7, lines 53 – 54.** CHAN further teaches that the "substrate color" may also be input as "spectral data"; **col. 7, lines 65 – 66.** CHAN's system includes a spectrophotometer which may be used to obtain the spectral data of the recording substrate.

The "adjustment" to the color values corresponds to the "calculation of the formulation" which "preferably takes into account the color shift, if any, expected for the substrate being printed"; **col. 7, lines 60 - 62].**

Regarding claim 14, CHAN further teaches the method according to claim 1, wherein **at least one color of a specimen is spectrally measured and spectral color data is assigned to at least one of a matching discrete spectral color value and a matching digitized color value**

[CHAN teaches that "a variety of methods for inputting the desired color" (of a specimen) "is envisioned"; **col. 4, lines 46 – 47.** However, "more accurate color matching can be obtained using a spectrophotometer"; **col. 4, lines 57 – 58.**

Furthermore, CHAN teaches that a "color match" may be determined "by the comparison of the reflectance values in the visible spectrum for the desired color and the color identified by the color matching program. A least squares calculation can be done to determine the ink formulation that will have the

spectral curve with the closest fit to the spectral curve of the desired color standard, where the spectral curve for the ink formulation may be extrapolated from information of measured spectral curves in the data"; **col. 6, lines 33 – 41].**

Regarding claim 15, CHAN further teaches the method according to claim 1, wherein

the digitized color values are collected to provide a digital color book of at least one chromaticity

[CHAN teaches that the desired input color may be selected from a "library of colors shown on the customer's computer monitor"; **col. 4, lines 59 – 61.** Furthermore, "the colors may be shown as an array of color chips or boxes, as a continuum of colors such as a color space, or in any other suitable way"; **col. 4, line 66 – col. 5, line 1.** The "color library", when displayed as an array of color chips (as is typical in a color "swatch book"), corresponds to the "digital color book"**].**

Regarding claim 16, CHAN further teaches the method according to claim 1, wherein

said processing includes <u>at least one</u> of the following processing steps:

assigning the digitized color values to color values of images,

transmitting at least one digitized color value between remote terminals,

and printing out at least one digitized color value

[As noted for claim 1, "processing" of the digitized color values may include the transmission of such values from the "second computer" to the "first computer", including the display of such values on a monitor.

"The second computer **10** (illustrated as the server) selects an ink formulation and transmits the color data associated with the selected formulation to the first computer **4**"; **col. 3, lines 31 – 33.**

Furthermore, a software package "converts the spectral data of a color that is input from the computer 4 or the database software 22 to the digital information that will produce the same color on the screens of monitor 6 and 16"; **col. 3, lines 52 - 55].**

Regarding claim 17, CHAN further teaches the method according to claim 1, further comprising

a data carrier for carrying at least one of said digitized color values

["The second computer 10 (illustrated as the server) selects an ink formulation and transmits the color data associated with the selected formulation to the first computer 4"; **col. 3, lines 31 – 33.**

The "data carrier" corresponds to the "second computer" (or server).**]**

As for claim 18, CHAN teaches a computer system for generating a digital color standard system for the generation or reproduction of standardized colors [CHAN provides a system "for identifying a desired ink color and a formulation for a matching ink color"; **col. 1, lines 56 - 58**], comprising a processor **[Fig. 1** "server" (or "second computer") **10]** that is programmed to

(i) divide a color spectrum into a plurality of discrete spectral color values with predetermined gaps between at least some of the discrete spectral color values,

[This limitation corresponds to a database of discrete spectral color values. CHAN teaches that a "spectrophotometer 14, color monitor 16, and viewing booth 18 are used ... to create a color data base associated with a set of ink base colors"; **col. 3, lines 43 – 46**, and cites, "The database is prepared by measuring", with the spectrophotometer, "the color information for print samples prepared from the ink color base set and/or combinations thereof at difference concentrations or strengths. The database contains a sufficient number of color information points so that the computer can extrapolate, if necessary, the color information that would result from the different combinations of the ink base color set"; **col. 5, lines 38 - 45]**

(ii) digitize the discrete spectral color values;

[Computer databases store information as digitized, discrete values. As noted previously, CHAN teaches the use of a spectrophotometer to measure "print samples prepared from the ink color base set" which are then stored in a database.]

and (iii) process the digitized color values.

["Processing" of the digitized color values may include the transmission of such values from the "second computer" to the "first computer", including the display of such values on a monitor.

"The second computer **10** (illustrated as the server) selects an ink formulation and <u>transmits</u> the color data associated with the selected formulation to the first computer **4**"; **col. 3, lines 31 – 33.**

Furthermore, a software package "converts the spectral data of a color that is input from the computer 4 or the <u>database</u> software 22 to the digital information that will <u>produce</u> the same color on the screens of monitor 6 and 16"; **col. 3, lines 52 - 55]**

Regarding claim 19, CHAN further teaches the computer system according to claim 18, wherein

said digitized color values are stored in memory associated with the processor and are accessible through a data network

[The digitized color values are stored in a computer database. Regarding **Fig. 1**, "The server 10 uses three software packages, 12, 20 and 22"; **col. 3, lines 40 – 41.** "Software package C 22 includes a database of color information"; **col. 3, lines 56 – 57.**

Both software package C and its database of color values are associated with the processor (i.e., "second computer" or server **10**).

First and second computers communicate over a network. CHAN cites, as an example, the "Internet"; **col. 3, line 2].**

Regarding claim 20, CHAN further teaches the computer system according to claim 18, wherein

said digitized color values are stored in memory associated with the processor in the form of at least one digital color swatch

[CHAN teaches that the desired input color may be selected from a "library of colors shown on the customer's computer monitor"; **col. 4, lines 59 – 61.** Furthermore, "the colors may be shown as an array of color chips or boxes, as a continuum of colors such as a color space, or in any other suitable way"; **col. 4, line 66 – col. 5, line 1.** The "color library", when displayed as an array of color

chips (as is typical in a color "swatch book"), corresponds to a book of "digital color swatches"**].**

Regarding claim 21, CHAN further teaches the computer system according to claim 18, wherein

color recording characteristics data of a plurality of recording substrates are stored in the memory associated with said processor and are accessible through a data network

[As noted for claim 4, CHAN teaches that the characteristics of recording substrates are preferably included (along with the desired input color); **col. 4, lines 30 – 39.** The processor (i.e., the "second computer" or server **10** shown in **Fig. 1**) considers these additional characteristics (along with the desired input color) when performing a color match. The resulting color match, which takes into account the characteristics of the recording substrate, is made accessible through a network to the "first computer" (**Fig. 1** reference number **4**)**].**

Regarding claim 22, CHAN further teaches the computer system according to claim 18, wherein

the processor can be accessed in order to combine a standard digital color swatch book or digital standard color data with color recording substrate characteristics, to generate color reproduction simulation data

[As noted previously, CHAN teaches "that color can vary for an ink depending upon the substrate being printed"; **col. 7, lines 53 – 54.** CHAN further teaches that the "substrate color" may also be input as "spectral data"; **col. 7, lines 65 – 66.** CHAN's system includes a spectrophotometer which may be used to obtain the spectral data of the recording substrate.

The "combination" of the color values with the characteristics of the recording substrate corresponds to the "calculation of the formulation" which "preferably takes into account the color shift, if any, expected for the substrate being printed"; **col. 7, lines 60 - 62].**

Regarding claim 23, CHAN further teaches the computer system according to claim 18, wherein

color reproduction characteristics data for a plurality of color materials are stored in memory associated with the processor to be accessed through a data network in order to retrieve data

[As noted for claim 4, CHAN teaches that the color values are adapted to a particular recording material (i.e., ink or colorant).

CHAN cites, "It is especially preferred to include additional information relating to the print substrate, printing equipment, and other information that may affect the color match on the substrate or performance of the ink. Examples of such

information include, without limitation, type of substrate, color of substrate, print process (e.g., offset, gravure, sheetfed, flexographic, etc.), type of printing equipment, press speed, <u>and/or type of ink or ink properties desired</u>"; **col. 4, lines 30 – 37.** .

The color reproduction characteristics data for the various types of ink (i.e., "color materials") is considered by the processor (i.e., "second computer") when a color match is performed and would typically be stored in a memory accessible by the processor**]**.

Regarding claim 25, CHAN further teaches the computer system according to claim 18, wherein <u>at least two</u> of the following kinds of data can be accessed or combined by the processor:

digital standard color swatch book data or digital standard color data;

color recording characteristics data for recording substrates;

color reproduction characteristics data for color materials;

color appearance characteristics data for various color reproducing processes;

in order to achieve particular color reproduction simulation data

[In addition to the “database of color information for the ink base color set” (**col. 3, lines 56 - 57**), CHAN teaches that the “second computer” may also consider “color recording characteristics” for the type of “recording substrate”, “color reproduction characteristics” for the type of “color material”, and the “color appearance characteristics” for the “color reproducing process”.

CHAN cites, “It is especially preferred to include additional information relating to the print substrate, printing equipment, and other information that may affect the color match on the substrate or performance of the ink. Examples of such information include, without limitation, type of substrate, color of substrate, print process (e.g., offset, gravure, sheetfed, flexographic, etc.), type of printing equipment, press speed, and/or type of ink or ink properties desired”; **col. 4, lines 30 – 37.**

CHAN teaches “that color can vary for an ink depending upon the substrate being printed”; **col. 7, lines 53 – 54.** CHAN further teaches that the “substrate color” may also be input as “spectral data”; **col. 7, lines 65 – 66.** CHAN’s system includes a spectrophotometer which may be used to obtain the spectral data of the recording substrate.

CHAN teaches the “combination” of the digital standard color data (i.e., the database) with characteristics of the recording substrate which corresponds to

the "calculation of the formulation" that "preferably takes into account the color shift, if any, expected for the substrate being printed"; **col. 7, lines 60 - 62]**

Regarding claim 26, CHAN further teaches the computer system according to claim 25, wherein

said color reproducing processes include various printing processes, electro-photographical color copying processes and screens.

CHAN teaches a color matching system which can be applied to "offset lithography" and other processes, such as "gravure, flexography, and silk screen printing"; **col. 8, lines 25 – 29.**

Regarding claim 27, CHAN further teaches the computer system according to claim 18, wherein

color reproduction simulation data can be browsed by a remote terminal [CHAN teaches "the color of the selected formulation can be displayed on the customer monitor for approval by the customer. In this context, the 'customer' can be the printer and/or the print buyer and/or a designer of packaging or other printed media"; **col. 6, lines 42 - 45].**

Regarding claim 28, CHAN further teaches the computer system according to claim 18, wherein

color recording characteristics data for recording substrates,

color reproduction characteristics data for color materials,

or color appearance characteristics data for various color reproducing processes

can be transmitted to a data carrier or device to be stored, in order to be accessible or combinable by remote terminals, to achieve particular color reproduction simulation data.

[CHAN teaches that the "second computer" may also consider "color recording characteristics" for the type of "recording substrate", "color reproduction characteristics" for the type of "color material", and the "color appearance characteristics" for the "color reproducing process". That is, the color data that is stored on the "second computer" and is transmitted to the "first computer" is data which takes into account these various characteristics.

In addition to specifying a desired input color, CHAN teaches, "It is especially preferred to include additional information relating to the print substrate, printing equipment, and other information that may affect the color match on the substrate or performance of the ink. Examples of such information include, without limitation, type of substrate, color of substrate, print process (e.g., offset,

gravure, sheetfed, flexographic, etc.), type of printing equipment, press speed, and/or type of ink or ink properties desired"; **col. 4, lines 30 – 37.**

Therefore, CHAN teaches **color recording characteristics data for recording substrates** (i.e., "type of substrate" or "color of substrate"),

color reproduction characteristics data for color materials (i.e., "type of ink or ink properties desired"),

or color appearance characteristics data for various color reproducing processes (i.e., type of "print process", "printing equipment")

can be transmitted to a data carrier (i.e., the "second computer" **10** or server shown in **Fig. 1**) **or device to be stored,**

in order to be accessible or combinable by remote terminals, to achieve particular color reproduction simulation data (as noted for claim 25, CHAN teaches the "combination" of the digital standard color data (i.e., from the database) with characteristics of the recording substrate which corresponds to the "calculation of the formulation" that "preferably takes into account the color shift, if any, expected for the substrate being printed"; **col. 7, lines 60 - 62)]**

As for claim 29, CHAN teaches a *data carrier* comprising:

a device [Fig. 1 "second computer" or server **10]**

that is adapted to receive color data

[A "remote location includes a spectrophotometer 2, a first computer (central processing unit) 4, a color monitor 6 electronically connected to the computer, and a viewing booth 8. The spectral data of a color sample of the desired color is obtained using the spectrophotometer 2. The color data for the desired color is input into the computer 4, which transmits the data to a second computer 10"; **col. 2, lines 52 – 59.** "The second computer 10 (illustrated as the server) selects an ink formulation and transmits the *color data associated with the selected formulation* to the first computer 4"; **col. 3, lines 31 - 33]**

CHAN further teaches that the "second computer" may also consider "color recording characteristics" for the type of "recording substrate", "color reproduction characteristics" for the type of "color material", and the "color appearance characteristics" for the "color reproducing process". That is, the color data that is stored on the "second computer" and is transmitted to the "first computer" is data which takes into account these various characteristics.

CHAN cites, "It is especially preferred to include additional information relating to the print substrate, printing equipment, and other information that may affect the

color match on the substrate or performance of the ink. Examples of such information include, without limitation, type of substrate, color of substrate, print process (e.g., offset, gravure, sheetfed, flexographic, etc.), type of printing equipment, press speed, and/or type of ink or ink properties desired"; **col. 4, lines 30 – 37.** Therefore, the following limitations are anticipated by CHAN.

that is selected from the group consisting of

color recording characteristics data for recording substrates

[i.e., "type of substrate, color of substrate"**],**

color reproduction characteristics data for color materials

[i.e., "type of ink or ink properties desired"**],**

color appearance characteristics data for various color reproducing processes [i.e., type of "print process", "printing equipment"**], and combinations thereof,**

wherein said color data is generated by:

(i) dividing a color spectrum into a plurality of discrete spectral color values with predetermined gaps between at least some of the discrete spectral color values

[This limitation corresponds to a database of discrete spectral color values. CHAN teaches that a "spectrophotometer 14, color monitor 16, and viewing booth 18 are used ... to create a color data base associated with a set of ink base colors"; **col. 3, lines 43 – 46**, and cites, "The database is prepared by measuring the color information for print samples prepared from the ink color base set and/or combinations thereof at difference concentrations or strengths. The database contains a sufficient number of color information points so that the computer can extrapolate, if necessary, the color information that would result from the different combinations of the ink base color set"; **col. 5, lines 38 - 45],**

(ii) digitizing the discrete spectral color values

[Computer databases store information as digitized, discrete values. As noted previously, CHAN teaches the use of a spectrophotometer to measure "print samples prepared from the ink color base set" which are then stored in a database**];**

and (iii) processing the digitized color values

["Processing" of the digitized color values may include the transmission of such values from the "second computer" to the "first computer", including the display of such values on a monitor.

As noted previously, "The second computer **10** (illustrated as the server) selects an ink formulation and transmits the color data associated with the selected formulation to the first computer **4**"; **col. 3, lines 31 – 33.**

Furthermore, a software package "converts the spectral data of a color that is input from the computer 4 or the database software 22 to the digital information that will produce the same color on the screens of monitor 6 and 16"; **col. 3, lines 52 - 55].**

Claim Rejections - 35 USC § 103

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

14. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

15. Claims 2, 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over **CHAN [US Patent 7,046,396 B2]** in view of **RICE [US Patent 6,563,510 B1]**.

Regarding claim 2, CHAN does not specifically teach the method according to claim 1, wherein

> **at least one of the discrete spectral color values or the digitized discrete color values is equidistant at least over a part of the color spectrum.**

RICE teaches a paint color matching system, wherein the "paint color samples have been arranged according to the guiding principle that adjacent samples should represent equal intervals of visual color perception"; **col. 8, lines 36 – 38.**

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of RICE with those of CHAN so that the database containing the digital color values would not contain values which are indistinguishable from each other. This results in an efficient use of database storage space.

Regarding claim 3, CHAN does not specifically teach the method according to claim 1, wherein

> **the discrete spectral color values are equidistant for each other with respect to ~~the~~ *a* color gamut.**

RICE teaches a paint color matching system, wherein the "paint color samples have been arranged according to the guiding principle that adjacent samples should represent equal intervals of visual color perception"; **col. 8, lines 36 – 38.**

RICE further teaches that some colors may be excluded from an architectural "gamut" of paint colors. RICE teaches that the database "may exclude those colors for which architectural paints are not useful or desirable. For example, architectural paints have very low chroma (dull) or very high (light) or very low (dark) value are generally unused, and thus, are preferably excluded from the database"; **col. 8, lines 50 – 55.** As a result, a smaller gamut of all visible colors may be used for color matching.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of RICE with those of CHAN so that the database containing the digital color values would not contain values which are indistinguishable from each other. This results in an efficient use of database storage space. Furthermore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use a smaller gamut of color for a given application, or printing device.

Conclusion

16. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

- U.S. Patent 5,798,943 (Cook et al.)
- U.S. Patent 6,349,300 B1 (Graf et al.)
- U.S. Patent 6,842,654 B2 (Lawn et al.)
- U.K. Patent Application GB 2361158 A (Durnian and Dornan)

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Peter L. Cheng whose telephone number is 571-270-3007. The examiner can normally be reached on MONDAY - FRIDAY, 8:30 AM - 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, King Y. Poon can be reached on 571-272-7440. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

plc

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